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for the mean of three observations,  $\pm 0.008$  magnitude. While this is a greater discordance than would ordinarily occur in this work, it indicates that the stars as a class are fairly constant. In fact, only two or three stars show a measured range as great as 0.06 magnitude, and the others still less. Unless a period is known as in the case of a spectroscopic binary, there is at present no apparent advantage in attempting to follow changes of less than a tenth of a magnitude in irregular or long periods.

Of course it may happen that several other stars of the list are variables which have been missed, and further observations will be made here on suspicious cases. In particular, the three stars which were measured at intervals of a year, 58 *Persei*, 31 *Cygni* and  $\gamma$  *Cygni*, each show a progressive change of 0.02 magnitude during that time, and while no significance is given to this, it may be worth while to follow the stars casually for some time to come.

JOEL STEBBINS.

University of Illinois Observatory,  
March, 1920.

#### THE SPECTRUM OF NOVA LYRAE

The discovery, by Miss Mackie, of a new star in the constellation *Lyra*, was announced in *Harvard College Observatory Bulletin* No. 705. Observations of its spectrum have been secured at the Lick Observatory on the following dates: 1920, February 12, 13, 17, March 4 and 18. They include the region of the spectrum from the ultra-violet to the red at H $\alpha$ . There seem to be no emission bands of appreciable strength of shorter wave-length than the limit of the hydrogen series, tho the extreme rays are obliterated by atmospheric absorption at the low altitude at which it was necessary to observe the star in the morning sky.

The principal emission bands are those of hydrogen, the usual compound band near 4650A, a band overlying H $\delta$ , which has occurred in many novae, and others in positions 3995, N<sub>2</sub>, N<sub>1</sub>, 5681, 5752 and 6474A. There are a number of fainter bands whose positions will be given in a more detailed account of the spectrum to appear later. The band 5752 doubtless corresponds with the nebular line 5755A; it was measured on one of the earlier plates, and on all of these N<sub>1</sub>\* suffers a similar displacement toward the

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\*N<sub>2</sub> is too faint to record on the early plates.

violet with respect to the hydrogen lines which served as the basis of wave-length reductions. The apparent displacement was probably due to a shift of the maximum, such as has been observed in other novae to be peculiar to the bands in question. On March 18  $N_1$  and  $N_2$  were in their normal positions.

Generally speaking, the nova may be said to have reached the "nebular stage," tho that term should perhaps be used with reservation for the reason that some of the characteristic nebular radiations, namely 5755 and 6302A, are frequently present early in the development of a temporary star. The nebular band 4363A, which usually becomes strong with the N lines is, in this spectrum, comparatively weak. If it occurs at all it is as a hazy extension, or wing, on the less refrangible side of  $H\gamma$ . The presence of 4686A is doubtful. There is a narrow maximum in that position, but it would be difficult to interpret it as indicating the radiation in question.

The emission bands are wider on the later plates than on the earlier ones.  $H\beta$  increased from a width of about 19A on February 12 to 30A on March 18th.

The nova was of about the 9th magnitude on February 12th, but has since grown somewhat fainter. W. H. WRIGHT.

#### THE PLANETS IN THE EVENING SKY

Experience has shown that the Moon, to which, in honor of our Bruce Medalist, Professor E. W. Brown, the present number of these PUBLICATIONS is in large part devoted, is always the object of first interest to visitors to the Lick Observatory. One of our telescopes is therefore directed upon the Moon on our public nights<sup>1</sup> whenever it is in good position for observation. It should be said that our satellite is a very disappointing object, telescopically, when at or near the full-moon phase, because there are then no shadows to introduce contrasts. Hence relatively little of the surface detail can be seen satisfactorily. As it is also disappointing when very near the horizon, we are practically limited to the time from about 5 to 10 or 12 days after the new-moon phase.

Next to the Moon, it has been our experience that the three planets, *Jupiter*, *Saturn* and *Mars*, are the objects our visitors most desire to see; and it is the chief purpose of the present note to call

<sup>1</sup>The telescopes are open to visitors reaching the Observatory before 9 P. M. (10 P. M. by summer or daylight-saving time) on every clear Saturday night.